

IN THE CLAIMS:

Please amend Claim 9 as shown below. The claims, as pending in the subject application, now read as follows:

1. (Previously presented) An image processing method comprising:

a numerical signal generation step of sequentially generating and outputting regular binary numerical signals in synchronism with a clock signal;

a bit conversion step of generating and outputting, from the output signal in said numerical signal generation step being managed as an input signal, a signal that order of bits in the input signal has been exchanged or a signal that value of bit in the input signal has been reversed; and

a control step of controlling the bit order exchange operation or the bit value reversal operation in said bit conversion step,

wherein image data divided into pixel data and one-dimensionally arranged and stored in a memory is read and output in synchronism with the sequential operation in said numerical signal generation step, and the output signal generated in said bit conversion step is read and output as an address signal, so that a rotation and/or reversal process to a former image is performed.

2. (Original) A method according to Claim 1, wherein an input two-dimensional image is represented by an aggregate of the pixel data, and all the pixel data are one-dimensionally arranged and transferred to the memory in synchronism with the clock signal.

3. (Previously presented) A method according to Claim 1, wherein, in said bit conversion step, plural kinds of bit conversions can be performed, and one of the plural kinds of bit conversions is selected and output according to an angle of rotation or a kind of reversal.

4. (Previously presented) An image processing apparatus comprising:

numerical signal generation means for sequentially generating and outputting regular binary numerical signals in synchronism with a clock signal;

bit conversion means for generating and outputting, from the output signal of said numerical signal generation means being managed as an input signal, a signal that order of bits in the input signal has been exchanged or a signal that value of bit in the input signal has been reversed;

control means for controlling the bit order exchange operation or the bit reversal operation of said bit conversion means; and

storage means for storing image data, wherein the image data divided into pixel data and one-dimensionally arranged and stored in said storage means is read and output in synchronism with the sequential operation of said numerical signal generation means, and the output signal generated by said bit conversion means is read and output as an address signal, so that a rotation and/or reversal process to a former image is performed.

5. (Original) An apparatus according to Claim 4, wherein an input two-dimensional image is represented by an aggregate of the pixel data, and all the pixel data are one-dimensionally arranged and transferred to said storage means in synchronism with the clock signal.

6. (Previously presented) An apparatus according to Claim 4, wherein said bit conversion means can perform plural kinds of bit conversions, and selects and outputs one of the plural kinds of bit conversions according to an angle of rotation or a kind of reversal.

7. (Previously presented) An image processing method comprising:
a numerical signal generation step of sequentially generating and outputting regular binary numerical signals in synchronism with a clock signal;

a bit conversion step of generating and outputting, from the output signal in said numerical signal generation step being managed as an input signal, a signal that order of bits in the input signal has been exchanged or a signal that value of bit in the input signal has been reversed; and

a control step of controlling the bit order exchange operation or the bit reversal operation in said bit conversion step,

wherein image data is written in a memory in synchronism with the sequential operation in said numerical signal generation step and by using the output signal generated in said bit conversion step as an address signal, and the image data written in the

memory is read according to addresses of predetermined order, so that a rotation and/or reversal process to a former image is performed.

8. (Previously presented) An image processing apparatus comprising:

numerical signal generation means for sequentially generating and outputting regular binary numerical signals in synchronism with a clock signal;

bit conversion means for generating and outputting, from the output signal of said numerical signal generation means being managed as an input signal, a signal that order of bits in the input signal has been exchanged or a signal that value of bit in the input signal has been reversed;

control means for controlling the bit order exchange operation or the bit value reversal operation of said bit conversion means; and

storage means for storing image data, wherein the image data is written in said storage means in synchronism with the sequential operation of said numerical signal generation means and by using the output signal generated by said bit conversion means as an address signal, and the image data written in said storage means is read according to addresses of predetermined order, so that a rotation and/or reversal process to a former image is performed.

9. (Currently amended) A storage medium which stores a control program to control an image processing apparatus, said program comprising:

a numerical signal generation module of sequentially generating and outputting regular binary numerical signals in synchronism with a clock signal;

a bit conversion module of generating and outputting, from the output signal in said numerical signal generation module being managed as an input signal, a signal that order of bits in the input signal has been exchanged or a signal that value of bit in the input signal have been reversed; and

a control module of controlling the bit order exchange operation or the bit value reversal operation in said bit conversion module,

wherein image data divided into pixel data and one-dimensionally arranged and stored in a memory is read and output in synchronism with the sequential operation in said numerical signal generation module, and the output signal generated in said bit conversion module is read and output as an address signal, so that a rotation and/or reversal ~~rotation/reversal~~ process to a former image is performed.

10. (Previously presented) A storage medium which stores a control program to control an image processing apparatus, said program comprising:

a numerical signal generation module of sequentially generating and outputting regular binary numerical signals in synchronism with a clock signal;

a bit conversion module of generating and outputting, from the output signal in said numerical signal generation module being managed as an input signal, a signal that order of bits in the input signal has been exchanged or a signal that value of bit in the input signal has been reversed; and

a control module of controlling the bit order exchange operation or the bit value reversal operation in said bit conversion module,

wherein image data is written in a memory in synchronism with the sequential operation in said numerical signal generation module and by using the output signal generated in said bit conversion module as an address signal, and the image data written in the memory is read according to addresses of predetermined order, so that a rotation and/or reversal process to a former image is performed.

11. (Previously presented) An image processing method comprising:

an input step of inputting a block image and positional information of the block image;

an image rotation and/or reversal processing step of rotating or reversing the input block image by a block, and outputting the rotated or reversed block image;

and

a conversion step of converting the positional information of the input block image into the positional information of the image after the rotation or the reversal,

wherein the conversion in said conversion step is a process corresponding to the content of the image rotation or the image reversal in said image rotation and/or reversal processing step, and in the conversion, the positional information for the entire image before the rotation or the reversal where the block image stands is converted into the positional information for the entire image after the image rotation or the image reversal in said image rotation and/or reversal processing step, and the converted positional information is added to the rotated or reversed block image and output.

12. (Previously presented) An image processing apparatus comprising:
input means for inputting a block image and positional information of the block image;
image rotation and/or reversal processing means for rotating or reversing the input block image by a block, and outputting the rotated or reversed block image; and
conversion means for converting the positional information of the input block image into the positional information of the image after the rotation or the reversal,
wherein the conversion by said conversion means is a process corresponding to the content of the image rotation or the image reversal by said image rotation and/or reversal processing means, and in the conversion, the positional information for the entire image before the rotation or the reversal where the block image stands is converted into the positional information for the entire image after the image rotation or the image reversal by said image rotation and/or reversal processing means, and the converted positional information is added to the rotated or reversed block image and output.

13. (Previously presented) A storage medium which stores a control program to control an image processing apparatus, said control program comprising:
an input module of inputting a block image and positional information of the block image;
an image rotation and/or reversal processing module of rotating or reversing the input block image by a block, and outputting the rotated or reversed block image; and

a conversion module of converting the positional information of the input block image into the positional information of the image after the rotation or the reversal, wherein the conversion in said conversion module is a process corresponding to the content of the image rotation or the image reversal in said image rotation and/or reversal processing module, and in the conversion, the positional information for the entire image before the rotation or the reversal where the block image stands is converted into the positional information for the entire image after the image rotation or the image reversal in said image rotation and/or reversal processing module, and the converted positional information is added to the rotated or reversed block image and output.